

REMARKS:

Claims 10 and 12-21 are all of the claims presently pending in the Application. Claims 10, 12-14, 16, 17 and 19 have been amended to more particularly define the claimed invention. Claims 1-9 and 11 have been canceled without prejudice or disclaimer.

Applicant specifically states that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

Claims 10-15 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Prasad (U.S. Patent No. 4,931,070). Claims 10-14 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Sperberg (U.S. Patent No. 3,370,915; hereinafter "Sperberg '915"). Claims 10-14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Sperberg '915 in view of Sperberg (U.S. Patent No. 3,498,343; hereinafter "Sperberg '343"). Claims 10-16 and 18-21 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Barbe (FR 2 722 114) in view of Matsubara (JP 2001-314727). Claim 17 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Barbe in view of Matsubara, as applied to claims 10 and 15 above, and further in view of Caskey, et al. (U.S. Patent No. 4,929,259; hereinafter "Caskey").

These rejections are respectfully traversed in the following discussion.

I. THE CLAIMED INVENTION

The claimed invention (e.g., as defined by exemplary claim 10) is directed to an apparatus for producing nitrogen gas.

The apparatus includes a compressor, which generates compressed air, a deoxidizing chamber, containing iron powder and a catalyst, an inlet formed in the deoxidizing chamber, from which the compressed air is supplied, and an outlet formed in the deoxidizing chamber,

from which nitrogen gas deoxidized by the iron air power and the catalyst is led out.

Conventionally, there exist three techniques for producing nitrogen gas, which include the PSA technique, the membrane separation technique and the cryogenic separation technique. With the PSA technique, a load for maintaining an electromagnetic valve is imposed on the apparatus. With the membrane separation technique, the purity of the nitrogen is not high enough for high-purity nitrogen gas. Finally, the cryogenic separation technique requires a large scale facility.

The claimed invention of exemplary claim 1 provides a deoxidizing chamber, containing iron powder and a catalyst (e.g., see Application at page 9, lines 10-16). This allows for easily obtaining nitrogen gas with high purity at a low cost (see Application at page 5, lines 5-6).

II. THE PRIOR ART REJECTIONS

A. The Prasad Reference

The Examiner alleges that Prasad teaches the claimed invention of claims 10-15. Applicant submits, however, that there are elements of the claimed invention, which are neither taught nor suggested by Prasad.

That is, Prasad does not teach or suggest “*a deoxidizing chamber, containing iron powder and a catalyst*”, as recited in claim 10.

The Examiner attempts to rely on Figure 1 and column 4, lines 5-22 of Prasad to support his allegations. The Examiner, however, is incorrect.

Nowhere, however, in this figure nor this passage (nor anywhere else for that matter) does Prasad teach or suggest a deoxidizing chamber, containing iron powder and a catalyst. Indeed, the Examiner does not even allege that Prasad teaches or suggests this feature of the

claimed invention.

The Examiner merely alleges “the catalyst is not positively recited as an element of the apparatus” (see Office Action dated February 7, 2007 at page 4). However, the claimed invention (e.g., as defined by exemplary claim 10) positively recites this feature.

Therefore, Applicant submits that there are elements of the claimed invention that are not taught or suggested by Prasad. Therefore, the Examiner is respectfully requested to reconsider and withdraw this rejection.

B. The Sperberg ‘915 Reference

The Examiner alleges that Sperberg ‘915 teaches the claimed invention of claims 10-14. Applicant submits, however, that there are elements of the claimed invention, which are neither taught nor suggested by Sperberg ‘915.

That is, Sperberg ‘915 does not teach or suggest “*a deoxidizing chamber, containing iron powder and a catalyst*”, as recited in claim 10.

The Examiner attempts to rely on column 1, lines 24-39 of Sperberg ‘915 to support his allegations. The Examiner, however, is incorrect.

Nowhere, however, in this passage (nor anywhere else for that matter) does Sperberg ‘915 teach or suggest a deoxidizing chamber, containing iron powder and a catalyst. Indeed, the Examiner does not even allege that Sperberg ‘915 teaches or suggests this feature of the claimed invention.

The Examiner merely alleges “the catalyst is not positively recited as an element of the apparatus” (see Office Action dated February 7, 2007 at page 5). However, the claimed invention (e.g., as defined by exemplary claim 10) positively recites this feature.

Furthermore, the Examiner appears to analogize the air chamber of the tire in Sperberg

'915 to the claimed deoxidizing chamber. However, the air chamber in Sperberg '915 does not include an inlet and an outlet, as recited in the claimed invention.

Therefore, Applicant submit that there are elements of the claimed invention that are not taught or suggested by Sperberg '915. Therefore, the Examiner is respectfully requested to reconsider and withdraw this rejection.

C. The Sperberg '343 Reference

The Examiner alleges that Sperberg '343 would have been combined with Sperberg '915 to teach the claimed invention of claims 10-14. Applicant submits, however, that, even if combined, the alleged combination of references would not teach or suggest each and every feature of the claimed invention.

That is, neither Sperberg '343 nor Sperberg '915, nor any combination thereof, teaches or suggests "*a deoxidizing chamber, containing iron powder and a catalyst*", as recited in claim 10.

Indeed, as detailed in section B, above, Sperberg '915 does not teach or suggest this feature. Furthermore, Sperberg '343 fails to make up the deficiencies of Sperberg '915.

That is, nowhere, however, in this figure nor this passage (nor anywhere else for that matter) does Sperberg '343 teach or suggest a deoxidizing chamber, containing iron powder and a catalyst. Indeed, the Examiner does not even allege that Sperberg '343 teaches or suggests this feature of the claimed invention.

Therefore, even if combined, the alleged combination of references would not teach or suggest each and every feature of the claimed invention. Therefore, the Examiner is respectfully requested to reconsider and withdraw this rejection.

D. The Barbe and Matsubara References

The Examiner alleges that Barbe and Matsubara would have been combined to teach the claimed invention of claims 10-16 and 18-21. Applicant submits, however, that even if combined, the alleged combination of references would not teach or suggest each and every feature of the claimed invention.

That is, neither Barbe nor Matsubara, nor any combination thereof, teaches or suggests "*a deoxidizing chamber, containing iron powder and a catalyst*", as recited in claim 10.

Indeed, the Examiner does not even allege that the alleged combination of Barbe and Matsubara teaches or suggests this feature of the claimed invention.

The Examiner merely alleges "the catalyst is not positively recited as an element of the apparatus" (see Office Action dated February 7, 2007 at page 6). However, the claimed invention (e.g., as defined by exemplary claim 10) positively recites this feature.

Therefore, Applicant submits that there are elements of the claimed invention that are not taught or suggested by the alleged combination of Barbe and Matsubara. Therefore, the Examiner is respectfully requested to reconsider and withdraw this rejection.

E. The Caskey Reference

The Examiner alleges that Caskey would have been combined with Barbe and Matsubara to teach the claimed invention of claim 17. Applicant submits, however, that, even if combined, the alleged combination of references would not teach or suggest each and every feature of the claimed invention.

That is, neither Caskey, nor Barbe, nor Matsubara, nor any combination thereof, teaches or suggests "*a deoxidizing chamber, containing iron powder and a catalyst*", as recited in claim 10.

Indeed, as detailed in section D, above, the alleged combination of Barbe and Matsubara does not teach or suggest this feature. Furthermore, Caskey fails to make up the deficiencies of Barbe and Matsubara.

That is, nowhere, however, in this figure nor this passage (nor anywhere else for that matter) does Caskey teach or suggest a deoxidizing chamber, containing iron powder and a catalyst. Indeed, the Examiner does not even allege that Caskey teaches or suggests this feature of the claimed invention.

Therefore, even if combined, the alleged combination of references would not teach or suggest each and every feature of the claimed invention. Therefore, the Examiner is respectfully requested to reconsider and withdraw this rejection.

V. CONCLUSION

In response to the Examiner's objections, the claims and the specification have been amended in a manner believed fully responsive to the Examiner's objections.

However, with respect to the Examiner's objection to the drawings, Applicant submits that reference number 152 represents the oxygen output from the hollow fiber membrane (e.g., as described on page 8, line 9). Accordingly, the Specification has been amended above. No amendments to the drawings are necessary.

In view of the foregoing, Applicants submit that claims 10 and 12-21, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed

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below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

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Respectfully Submitted,



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